

App. No. 10/820,535
Amendment Dated January 27, 2006
Reply to Office Action of October 27, 2005

REMARKS/ARGUMENTS

Claims 1-20 are pending in this application. Claims 1-20 stand rejected. Claims 1 and 15 have been amended to clarify the term "dual diode system... is collocated on a first substrate" and are supported by the discussion starting on page 5, line 20. Claim 8 has been amended to clarify a step of voltage measurement so that it is performed by "one of the three terminals and the two terminals" and is supported by the discussion starting on Figures 2 and 3, and relevant explanations thereof in the specification. Claims 16-20 have been amended to replace the term "method" for "system". No new matter has been added. In view of the preceding amendments and following remarks, reconsideration and allowance of all pending claims are respectfully requested.

Claim Rejections under 35 U.S.C. §102(e)

The Office Action dated October 27th, 2005 rejected claims 1, 3, 6, 8, 10, 13, 15, 17, and 20 under 35 USC 102(e) as being unpatentable over U.S. Patent Application Publication No. 2004/0001527 ("Grannes").

Regarding claim 1, Grannes fails to teach or suggest a dual diode system comprising a first junction diode and a second junction diode wherein the first junction diode and the second junction diode are collocated on a first substrate, the system having a first terminal that is coupled to a first electrode of the first junction diode, wherein the first electrode of the first junction diode has a first polarity, a second terminal that is coupled to a first electrode of the second junction diode, wherein the first electrode of the second junction diode has the first

App. No. 10/820,535
Amendment Dated January 27, 2006
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polarity, and a third terminal that is coupled to second electrodes of the first and second junction diodes, wherein the second electrodes of the first and second junction diodes have a second polarity that is opposite of the first polarity.

Instead Grannes discloses a circuit that is for sensing temperatures at multiple locations on a substrate (see Abstract). As such each pair of dual diodes is located at different locations on the substrate so that the temperatures can be sensed at multiple locations. Because each pair of dual diodes is located at different locations on the substrate, various diodes from different dual diodes cannot be construed to form first and second diodes that are collocated. In this connection, Grannes teaches that the use of multiple thermal diodes allow for the determination of thermal gradients on an IC (See Grannes, [0018]). This suggests that two diodes collocated at the same area do not allow for the determination of thermal gradients as intended by Grannes. Thus, Grannes teaches away from collocation of two diodes as claimed in amended claim 1.

Regarding claim 8, Grannes fails to teach or suggest a voltage measurement that is performed by using two terminals (single-ended measurements). It appears from the disclosure in Grannes that the voltage measurement method is designed to use all the three terminals (e.g., IC terminals 121, 122, and 123 in Figure 1) at any mode of operations. The Grannes method fails to provide a choice of an operation mode between use of the three terminals and use of the two terminals as claimed in amended claim 8.

App. No. 10/820,535
Amendment Dated January 27, 2006
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Independent claim 15 is similar to amended claim 1, albeit different in important ways and is submitted to be allowable for at least the reasons by which claim 1 is allowable.

Regarding claims 3, 6, 10, 13, 17, and 20, these claims are dependent upon amended claim 1, 8 or 15. Therefore claims 3, 6, 10, 13, 17, and 20 are patentable over Grannes for at least the reasons by which the claims from which they depend are allowable.

Claim Rejections under 35 U.S.C. § 103(a)

The Office Action dated October 27th, 2005 rejected claims 2, 9, and 16 under 35 USC 103 (a) as being unpatentable over Grannes in view of US 5195827 ("Audy"). The Office Action also rejected claims 5, 12, and 19 under 35 USC 103 (a) as being unpatentable over Grannes. Claims 1-2, 4, 7-9, 11 13-16, 18, and 20 were also rejected under 35 USC 103 (a) as being unpatentable over US 5982221 (Tuthill) in view of US6612738 (Beer).

Regarding claim 2, this claim is dependent upon amended claim 1. As discussed above regarding claim 1, Grannes teaches that the use of multiple thermal diodes allow for the determination of thermal gradients on an IC (See Grannes, [0018]). This suggests that two diodes collocated at the same area do not allow for the determination of thermal gradients as intended by Grannes. Since Grannes thus teaches away from collocation of two diodes, claim 1 would not be obvious over Grannes itself, or Grannes in view of Audy. Applicants believe that claim 2 is patentable for at least the reasons as stated above.

App. No. 10/820,535
Amendment Dated January 27, 2006
Reply to Office Action of October 27, 2005

Regarding claim 9, this claim is dependent upon amended claim 8. As discussed above regarding claim 8, Grannes fails to teach or suggest a voltage measurement that is performed by using two terminals (single-ended measurements). It appears from the disclosure in Grannes that the voltage measurement method is designed to use all the three terminals (e.g., IC terminals 121, 122, and 123 in Figure 1) at any mode of operations. The Grannes method fails to provide an advantage when it has a choice of an operation mode between use of the three terminals and use of the two terminals as claimed in amended claim 8. Applicants also believe that claim 9 is patentable over Grannes itself, and Grannes in view of Audy for at least the same reason.

Regarding claim 16, this claim is dependent upon amended claim 15. Independent claim 15 is similar to amended claim 1, albeit different in important ways and is submitted to be allowable for at least the reasons by which claim 1 is allowable. Applicants also believe that claim 16 is allowable for at least the same reason.

Regarding claims 1-2, 4, 7-9, 11 13-16, 18, and 20, Tuthill in view of Beer fails to disclose a temperature measurement circuit that is formed on a second substrate. The Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the temperature measurement circuit on a second substrate as taught by Beer instead of on the same substrate as done by Tuthill.

Applicants traverse this assertion because the proposed modification cannot render the prior art unsatisfactory for its intended purpose. Tuthill discloses a switched current temperature sensor circuit comprising switches (62, 64, 87, 88) and clock (38a) to synchronously switch them. Its temperature measurement circuit at least comprises op-amp (78) as well as some of the

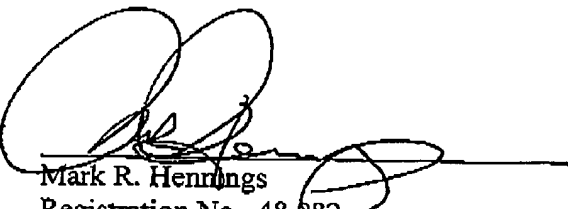
App. No. 10/820,535
Amendment Dated January 27, 2006
Reply to Office Action of October 27, 2005

switches (e.g., 87, 88). When the temperature measurement circuit is formed on a second substrate, as taught by Beer, it will require extra terminals because one clock (38a) is used to synchronize clock signals for all switches placed on different substrates. This teaches away from the present invention, which provides temperature measurements minimizing pin counts. Higher pin counts lead to a problem of higher complexity and costs in manufacturing and could be an adverse effect for the purpose of the invention. Dependent claims are submitted to be allowable for at least the reasons by which the claims from which they depend are allowable.

In view of the foregoing amendments and remarks, all pending claims are believed to be allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for the applicant at the telephone number provided below.

Respectfully submitted,

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